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# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE

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## Hornbill Takes a Walk

See Page 51

A SCIENCE SERVICE PUBLICATION

GENETICS

# Abnormal Chromosomes

➤ ABNORMAL CHROMOSOMES have been found in a brother and sister with cerebral palsy.

This indicates that, in some cases at least, cerebral palsy, like another defect which affects the brain and mind, Mongolism, is hereditary. Both may be due to a mistake in chromosome duplication that takes place in the germ cells of the parents before the child is conceived.

The two children studied had not only an unusual spastic-aspastic type of cerebral palsy, but congenital cataract as well.

Dr. J. Blumel of the University of Texas Medical Branch and the Moody State School for Cerebral Palsied Children, Galveston, and Drs. Y. Ohnuki and A. Awa of Hokkaido University, Sapporo, Japan, were working at the Moody State School when they first encountered the case. At first they believed that the defects in the brother and sister were due to a rare, recessive, autosomal (not sex-linked) type of inheritance.

Studies of the chromosome arrangement showed, however, that in each child, one of the chromosomes was misshapen and seemed to have no corresponding duplicate. The chromosome number was the usual 46. The scientists finally found that the abnormal chromosome was the X sex chromosome. It did have a mate, but the mate was normal.

Both parents were normal. But the fact that the X sex chromosome was abnormal in both the boy and the girl led the investigators to propose this theory in explanation in Nature, 189:154, 1961:

Before the mother herself was born, that part of the body which would become the cells she would pass on to her children underwent a change. The chromosomes in the vital egg cells changed and the pattern was set for the misshapen X chromosome, later inherited by her son and daughter.

The daughter, with an abnormal X from the mother and normal X from the father, is somewhat less afflicted than the son, who has the abnormal X from the mother and a normal Y chromosome from the father. The normal X is believed to cut down on the damaging effects produced by the abnormal one, and the boy lacks the modifying X. (Females have two X chromosomes, males have an X and a Y chromosome.)

• Science News Letter, 79:50 January 28, 1961

MEDICINE

# Arthritics in Room Test

➤ TWO FEMALE ARTHRITIS patients who are sensitive to weather are spending four weeks in an airtight controlled climate chamber. This is the first time that the effects of all phases of climate can be controlled and studied separately.

Mrs. Reba McIlwraith of Havertown, Pa., and Ethel Tankel of Trenton, N. J., are the arthritic volunteers. They have been patients at the Hospital of the University of Pennsylvania, from which all future participants in the program also will be selected.

Dr. Joseph Hollander of the University of Pennsylvania School of Medicine, director of the controlled climate chamber program, said many unrelated observations of medical value aside from arthritis research can be carried out on the same patients.

The chamber where the patients are staying is decorated as an ordinary "studio twin" room with mirrors and a mural wall to avoid a shut-in or claustrophobic feeling.

Controlled variables for possible study include: air temperature from 65 to 110 degrees Fahrenheit; humidity from 40% to 80% at 65 degrees to as low as 10% at 110 degrees; barometric pressure control from 28 inches of mercury to 31 inches of mercury absolute; and ionization to a maximum concentration of 2,500 ions per cubic centimeter positive or negative.

All dust particles are removed from incoming air down to less than 0.2 micra. Odors and gases will be removed by activated charcoal filters.

The patients are keeping diaries and are being measured by repeated tests showing extent of joint involvement, amount of pain-killing drug required for daily relief, blood sedimentation rate, temperature inside the most actively involved arthritic joint, etc.

• Science News Letter, 79:50 January 28, 1961

MEDICINE

# Sudden Deaths in Infants

➤ SMOTHERING IN BEDCLOTHES, long blamed as a cause of sudden death in infants, is often a fallacy and viral infection instead may be the cause of death.

Among 50 infants autopsied in Cleveland, Ohio, viral agents were detected in 12, seven isolated from central-nervous-system tissues and five from stool or pharynx.

Sudden unexpected deaths of infants under two years of age is a great public health problem, five doctors report in The New England Journal of Medicine, 264:53, 1961. The doctors are Drs. Eli Gold, Hannelore Heineberg, Lester Adelson and Frederick C. Robbins, all of Western Reserve University School of Medicine, Cleveland, and Dr. David H. Carver of the U. S. Public Health Service Communicable Disease Center, Atlanta, Ga.

Previous studies have indicated that from 25% to 44% of all infants dying in the early period after birth but before the age of two years do so suddenly and unexpectedly without post-mortem findings that are adequate to account for death.

Other suggestions of causes of death have included cardiac arrest and spasms of the larynx or bronchus, perhaps set off by a mild inflammation of the respiratory tract.

The investigators believe that considerable multiplication of virus within the body during the incubation period could account for death in a peculiarly susceptible host before any recognizable infection could appear.

They point out the need for further study to prove the relationship between viral infection and sudden death in infants.

• Science News Letter, 79:50 January 28, 1961

MEDICINE

# Duodenal Ulcers Likely In Group O Blood Types

➤ PERSONS having group O blood type have a better chance of getting a duodenal ulcer (in the first part of the small intestine) than do those with group A blood.

Group O blood persons run less risk of getting gastric, or stomach, ulcers, however, and group A persons are more likely to get this kind of ulcer.

Studies of 1,080 peptic ulcer patients who had operations performed by Dr. Ernest W. Grahame of General Hospital, Middlesbrough, Yorkshire, England, showed these differences between persons of blood groups O and A. The studies are reported in the British Medical Journal, Jan. 14.

"The results support the view that duodenal and gastric ulcers are different diseases except when the two are combined in the same patient," Dr. Grahame says. "In these circumstances the mechanism may follow the duodenal type."

Dr. Grahame cautions that he is not suggesting that all group O patients are likely to have duodenal ulcers or that group A patients are protected. In that event, he says, one would expect far greater numbers of peptic ulcer patients than "even the most alarming of figures" might indicate.

• Science News Letter, 79:50 January 28, 1961

GENERAL SCIENCE

# U. S. Average Scientist $9,000 Man in 1960

➤ THE AVERAGE U. S. scientist is a $9,000 a year man.

Data for 1960 gathered by the National Science Foundation show that half of 110,000 scientists responding to a questionnaire earned more than $9,000 and half earned less.

Comparable statistics for 1959 showed, in addition to salary, $1,000 more, probably from consulting fees, royalties and other income.

The median age of this full-time employed group was 38 years. The work reported was 38% in research, development and design, 27% in management and administration, and 15% in teaching.

• Science News Letter, 79:50 January 28, 1961

GENERAL SCIENCE

# Science Budget Boosted

## All time high Federal research and development budget submitted for fiscal 1962. Space research, rocket and missile development account for some of the boost.

➤ FEDERAL RESEARCH and development programs for the 1962 fiscal year are estimated at an all-time high of $9,443 million in the budget message sent to Congress by former President Eisenhower. This is an increase of $771 million over estimated expenditures for fiscal 1961, which ends June 30.

Space research, rockets and missile development are largely responsible for the budget boost; but more than half of the total amount, $6,274.8 million is for research under the Department of Defense.

Missile development, including an emphasis in the field of defense against ballistic missiles under the Army's Nike-Zeus antimissile project, continues in 1962 to represent the largest area of activity and expense.

But military research, both applied and basic, will be increased in 1962 in such areas as atmospheric research, materials research, high-energy physics, biomedical research, and the physics of matter.

While amounts estimated for military astronautics show an increase of $72 million over 1961, they continue to reflect reliance on the National Aeronautics and Space Administration for certain space technology programs, particularly in the field of large booster.

Almost $200 million more than in 1961 have been allocated for NASA research and development programs. The increase is planned for further space exploration with higher performance vehicles; continued work on large and complex orbiting astronomical and geophysical observatories; advanced passive and active communications satellites; increased tracking networks; and the operational orbital phase that the Mercury manned space flight is scheduled to begin this year.

Scientific exploration below the earth, in the oceans, also will be supported by larger funds. A total of $81.6 million will provide increased oceanographic research and surveys. It also will help maintain the National Oceanographic Data Center which will undertake its first full year of operation.

The budget also shows an increase in the amount to be spent on health, education and welfare, with the bulk of the increase going to the National Institutes of Health for basic medical research.

The Department of Commerce will expand its budget from an estimated $39 million in 1961 to $68.2 million in 1962 for research and development.

Included in this figure will be an expansion of plans to utilize data from meteorological satellites for the Weather Bureau's studies of weather processes and development of improved forecast techniques. Also included are an expansion of programs at the National Bureau of Standards.

National Science Foundation funds, generally used for the financing of promising basic research proposals, are $30 million more than 1961 estimated expenses and almost double the amount expended in 1960. The 1962 estimate is $119.4 million.

In addition to direct support of research, the National Science Foundation is responsible for studying the nation's research effort and recommending research and education policy in the sciences to be adopted in its support program by the Federal Government.

The largest single program of the Foundation is the support of institutes to supplement the training of science teachers. In 1962, the Foundation will allocate about $37 million for this purpose to assist approximately 33,600 teachers.

Other training grants also are supplied by research and development funds from such agencies as the Atomic Energy Commission, Department of Health, Education and Welfare, the Department of State and Department of Defense. These include research assistantships to graduate students, fellowships for pre-doctoral and post-doctoral studies, and specialized fellowships and traineeships.

The latter are awarded by the Federal Government primarily to provide advanced education and training for individuals who have completed their basic professional education. The AEC and HEW have the largest programs in this area. In fiscal 1962, the AEC will award 283 specialized fellowships and traineeships in such fields as nuclear science and engineering, health physics, radiological physics and industrial health and medicine. The HEW will award 1,441 such fellowships in medical specialties in 1962.

The fiscal 1962 budget for Federal research and development programs is approximately one-ninth of the total budget of $80.9 billion.

• Science News Letter, 79:51 January 28, 1961

*FIRST OF NEW GENERATION—The Navy HUL-1M utility helicopter is called the first of a new generation of turbine-powered light helicopters. The HUL-1M is the first aircraft to be powered by an Allison T-63 250 shaft horsepower turbine engine. It is now being tested at Bell Helicopter Company's plant at Fort Worth, Tex.*

ORNITHOLOGY

# Hornbill Walks in Leash To Help Chase a Cold

See Front Cover

➤ THE NATIONAL ZOO Abyssinian hornbill likes to take a walk on a leash when it has a cold. Its keeper said the exercise the bird gets then seems to do the most good in helping to chase the cold away.

The bird, seen on the cover of this week's SCIENCE NEWS LETTER, stands one and a half foot high. Its feathers are a dark brown, and the sac under the bill is a reddish color.

The Abyssinian hornbill eats small animals such as frogs, mice, lizards and insects. It may live to be about 30 years old. If angry, the hornbill at the National Zoological Park, Washington, D. C., lets out a growling sound like a lion, but not as loud, its keeper said.

• Science News Letter, 79:51 January 28, 1961

# SCIENTIA INTERNATIONAL

## NOVAS DEL MENSE IN INTERLINGUA

**Archeologia.**—Le etate de ancian objectos de vitro pote esser determinate per contar sub le microscopio le stratos de decomposition chimic que se forma a su superficie in parallela al rhythmo del annos. Le methodo esseva perfectionate per Dr. R. H. Brill del Museo de Vitro a Corning (New York). Per exemplo, in le caso de un fragmento de vitro excavate a Sardis in Turchia, le methodo Brill suggereva un etate de 1582±10 annos, e secundo altere evidentia Sardis pare haber florite ab le tertie usque al septime seculo del era christian.

**Biologia Marin.**—Durante le viage epochal del submarino nucleari Seadragon sub le polo del nord in le estate del anno passate, specimens de plankton esseva colligite per medio de un ingeniose apparatura automatic attachate al exterior del turre de conducta. Iste specimens es currentemente analysate in le spero que illos pote clarificar le processos polar de excambio inter le Oceanos Pacific e Atlantic.

**Genetica.**—Le numero del mutationes genetic inducite per irradiation ionisante in muscas de fructo (Drosophila) es reducite per circa 50 pro cento si le medio de cultura usate pro le muscas contine tracias del antibiotico actinomycina D. Iste constatation esseva facite per Dr. W. J. Burdette del Universitate Utah. Le antibiotico exerce le mentionate effecto jam quando su concentration in le medio amonta a solmente un millesimo de un pro cento.

**Cardiologia.**—Micre doses de iodo radioactive ha essite usate a bon successo in le alleviamento del dolores e del angustia de varie typos de morbo cardiac. Le iodo es absorbite selectivemente per le glandula thyroidic. Le radioactivitate del iodo deprime le activitate del glandula e secundarimente le metabolismo del corpore total. Assi le demandas facite al corde es diminuite; le causas del major dolores cardiac es reducite; e le patiente se senti melio. Iste nove typo de cardiotherapia esseva disveloppate al Scholas Medical del Universitates California e Sud-California.

**Recercas de Cancere.**—Le incidentia de cancere es possibilemente correlationabile con le radioactivitate natural del roccas intra un milieu particular. Iste radioactivitate varia significativemente intra comparativemente micre regiones geographic, a judicar per le resultatos preliminari de un studio de geologos e medicos que es currentemente in progresso in le contato de Washington.

**Hormonologia.**—Investigatores britannic ha constatate que le infestation per parasitos helminthic differe inter ranas mascule e ranas feminin durante e immediatemente ante le periodo de lor activitate sexual. Ranas mascule es alora plus infestate que ranas feminin. Le theoria que le hormones sexual del ranas feminin protege los contra le infestation esseva testate per injicer in ranas mascule un preparato de hormon de sexo feminin. Le resultato esseva un reduction significative del numero de parasitos retrovate.

**Scientias Atomic.**—Dr. W. Libby, universalmente cognoscite per su origination de un methodo de datar substantias organic super le base de lor contento de carbon radioactive, es ingagiate in recercas visante a elaborar methodos analoge pro le datation de substantias preorganic. Le methodo a carbon radioactive non es applicabile a specimens de etates de plus que 50.000 annos. Dr. Libby ha le ambition (e le spero) de trovar methodos pro datar specimens de etates de usque a 200 o 300 milliones annos.

**Pediatria.**—In certe centros medical de Sveda, infantes prematur con difficultates respiratori es placiate in ambientes a temperatura abassate, con le objectivo de relentar lor metabolismo e reducer assi lor requirimentos de oxygeno. Stimulate per le presentia de duo professores de excambio de Sveda al Universitate California, ille instituto conduce currentemente in un de su laboratorios un investigation experimental del effecto de basse temperaturas corporee e ambiental super le mortalitate de animales de nascentia prematur. Le prime resultatos pare corroborar le these svede de un effecto benefic de basse temperaturas.

**Ornitoholgia.**—Juvene aves del genere Sialia non apprende a cantar le canto typic de lor specie particular si illos non lo audi ante le etate de circa 15 menses. Illos disveloppa le capacitate de producer le appello e varie altere vocalisationes typic de lor specie sin ulle contacto con aves adulte. Solmente le canto debe esser apprendite per imitation e nunquam se disveloppa per instincto. Si juvene sialias es tenite in isolation e alora es subitemente exponite al audition de "lor" canto, illos reage excitatemente ante le etate mentionate de 15 menses. Post ille etate, illos non reage del toto.

**Statistica.**—Le salario annual del scientista median del Statos Unite es $9000. Un questionario distribuite per le Fundation National pro le Scientias a Washington ha monstrate que in 1960 un medietate de 110.000 scientistas respondente ganiava plus que $9000 e le altere medietate minus. Le etate median de scientistas in empleos a tempore total esseva 38 annos. Le campos de occupation esseva recerca e disveloppamento pro 38 pro cento del respondentes, gerentia e administration pro 27 pro cento, e docentia pro 15 pro cento.

**Metallurgia.**—Le presentia de molybdenum in aqua in un concentration de non plus que un parte in un milliardo pote esser detegite per medio de un nove methodo disveloppate per scientistas del Statounitese Servicio Geologic. Le methodo es de importantia practic proque un aqua currente a contento de molybdenum debe haber passate per un deposito de ille metallo, e tal depositos es usualmente associate con le presentia de varie altere metallos de urgente desirabilitate industrial.

**Radiation.**—In le volta de coffros forte de un banca a Seattle on ha discoperite un pacco de radium que un cliente—conscie del valor sed non del periculo de su possession—habeva deponite illac in 1945. Le inspection, per medio de contatores Geiger, in omne le altere bancas de Seattle ha resultate in nulle discopertas additional de iste genere.

**Statistica Academic.**—In 1959, le numero de personas obtenente le grado de doctor ab statounitese institutiones academic esseva 5300. Isto esseva un record. Le etate medie del novemente coronate doctores esseva 31 annos e medie. Le intervallo medie inter baccalaureato e doctorato esseva 8,1 annos. Le parte del leon esseva doctoratos de chimia. Lor total esseva 1.062.

**Recercas de Cancere.**—Esseva trovate que patientes con cancere del pelle ha un basse reaction pigmentatori a radiation ultraviolette. Il es probabile que iste characteristica reflecte un defecto physiochimic de importantia systemic plus tosto que restringitemente local.

**Acustica.**—Esseva demonstrate experimentalmente per Dr. B. W. Robinson del Laboratorios National de Physica in Anglaterra que le sono le plus exasperante pro le aure human ha nihil a facer con jets o autos o fabricas. Illo es le sono de un cultello grattante un pot metallic.



GENERAL SCIENCE

## Reading Interlingua

➤ YOU CAN READ Interlingua if you had no more than one semester of high school French or Spanish or Latin and flunked it. You can read and understand a great deal of it even if you never had contact with any foreign language.

Send this page to an acquaintance abroad and tell him that he can get additional information about Interlingua from Alexander Gode, SCIENCE SERVICE's Interlingua Division, 80 E. 11th St., New York 3, N. Y.

Financial contributions to the Interlingua program are needed.

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GENERAL SCIENCE

# Pure Science Important

➤ THE USEFULNESS OF SCIENCE is not its most important aspect, Sir George Thomson, Nobel Prize winning British physicist, said at a National Science Foundation lecture in Washington.

"The value of 'useless science' must be stressed," he said. "I should like to be able to make people see research in science as one of the great achievements of the human mind, an activity more allied to the arts."

Sir George called attention to three important discoveries that resulted from research at or near Cambridge, England, where he is Master of Corpus Christi College.

These "useless" discoveries are a near-successful attempt to see atoms; comparative research on the atomic structure of hemoglobin (oxygen-carrying component of blood) and myoglobin (material found in muscles that acts as local oxygen supply to muscles); and in radio astronomy from listening to the radio waves emitted from sources in space.

The scientists engaged in such "pure" or "useless" scientific research were motivated by the "sheer joy of the art," much as the great artists who put their works on canvas because of a great inner compulsion to so create, Sir George told SCIENCE SERVICE. Whether the knowledge discovered may have practical application is not and should not be the paramount consideration in appraising its value, he said.

"However, it is possible that being able to see atoms and thus see 'atomic dislocations,' which could indicate structural weaknesses in materials, might have vastly important practical aplication," Sir George said. "There also may be some medical value to understanding the atomic structures of hemoglobin and myoglobin; but I seriously doubt whether radio astronomy has any ractical value at all."

Sir George credited applied or "useful" science with making it easier for scientists to engage in pure science research. Applied science has helped pure science by making "wonderful instruments" and by making them available at low cost, he said. An example is the perfection of vacuum techniques that has resulted in improved electric lighting and radio tubes.

• Science News Letter, 79:53 January 28, 1961

MATHEMATICS

# Algebra in Third Grade

➤ "BY HOLDING the introduction of algebra to the ninth grade, we are squandering some of the best mathematical learning years in children's lives," Dr. Robert B. Davis, associate professor of mathematics education at Syracuse University, Syracuse, N. Y., charged.

Dr. Davis is director of an experimental program that attempts to accelerate mathematics education by introducing algebra in grades three to six, teaching basic principles of mathematics in lower elementary grades and developing an early understanding of the nature of mathematical thought.

Expansion of this program, which now operates in schools in New York, Massachusetts and Connecticut, is now under way through receipt of two new grants, one for $50,000 from the Alfred P. Sloan Foundation and the other for $2,000 from the Marcel Holzer Foundation.

Sloan funds have been used to establish special fellowships awarded to 15 teachers of superior ability in the Northeast who will expand the experimental program by training other teachers in its use. Funds will also be used to produce special teaching materials for the experimental program, known as the "Madison Project."

The program is used by teachers as a supplement to, not as a substitute for, the regular mathematics curriculum.

Dr. Davis reports that teachers using the "Madison Project" seem to agree that abstract mathematics comes easy to children and the youngsters do not have difficulty in learning algebra and arithmetic at the same time.

"The 'Madison Project' makes learning algebra seem like a fascinating game to students in the elementary grades," Dr. Davis said.

Pointing up the need to speed up mathematics education, Dr. Davis noted that the amount of material a student has to learn actually doubles every ten years.

• Science News Letter, 79:53 January 28, 1961

TECHNOLOGY

## New Instrument Detects Costly Oil-Well Leaks

➤ AN INSTRUMENT has been developed to detect weaknesses in oil-well walls that could result in costly oil leaks. This weakness is caused by corrosion, a multi-million dollar problem in the oil industry each year.

Designed by Shell Development Company engineers at Emeryville, Calif., the instrument measures the effect of corrosion in a well casing by drawing an "electronic profile" of the thickness of the steel wall lining the well. Its gauge can detect where the wall was eaten away only one two-hundredth of an inch deep, which can be corrected in time before an oil leak develops.

The instrument is the first to detect an attack of corrosion on the outside, or earth side, of the steel lining. Here, the well casing is exposed to the eroding action of strong acids found in some of the rock layers surrounding the well. Instruments now in use are limited to probing the inside walls, detecting corrosion after the damage has been done.

The new instrument gauges the thickness of a casing by measuring from a transmitter lowered slowly inside the well the time it takes radio waves to travel through the casing wall. The thinner the wall, the faster the wave passes through.

This information is relayed to a surface recording instrument that draws a continuous profile of the wall's thickness on a rotating drum.

• Science News Letter, 79:53 January 28, 1961

TECHNOLOGY

## Computer-Designed Computer Built

➤ THE FIRST KNOWN COMPUTER designed from complete information supplied by another computer has been built by Western Electric Company scientists in Burlington, N. C. The computer will be used in target tracking tests for the Nike-Zeus, the U. S. Army's anti-missile defense system.

The entire logic network or "brain" of the digital computer was built from wiring diagrams, assembly information and parts list furnished by a general purpose digital computer. This method will save both months of valuable man-hours spent designing missile-defense equipment and thousands of dollars in defense funds.

In order to design the computer, the logic network for performing the necessary functions was first determined. This network was converted into a series of equations that was fed to the general purpose computer.

The computer produced written sheets of instruction specifying the number of components and the wiring plan of the new computer.

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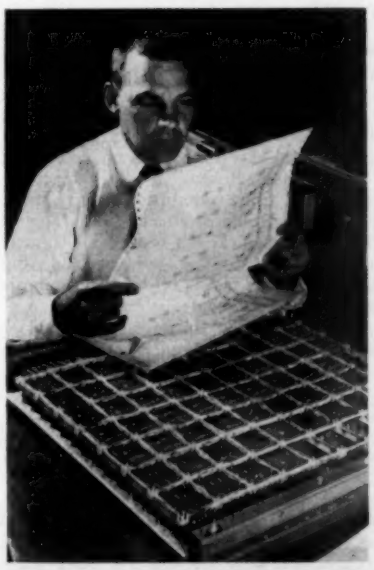


*COMPUTER FROM COMPUTER*

GENERAL SCIENCE

# President's Health Good

➤ PRESIDENT JOHN F. KENNEDY is in "superb physical condition."

He is fully capable of meeting any obligation of the presidency without need for special "medical treatment, unusual rest periods, or other limitations." These conclusions are reported in Today's Health magazine, Feb. 1961, published by the American Medical Association.

Some years ago, after his PT boat was sunk in World War II, President Kennedy suffered an adrenal insufficiency. Weakened by long hours of swimming, he contracted malaria which, coupled with the exhaustion, may have caused his adrenal glands to secrete an insufficient amount of the hormone adrenalin.

To insure optimal adrenal coverage, even though his last test was normal, he takes a simple oral dosage of corticosteroids. His doctors say that "adrenal insufficiency no longer presents any threat to a person who is fully rehabilitated on such simple oral therapy."

President Kennedy wears a quarter-inch lift in the heel of his left shoe because his right leg is a trifle longer than the left. He also wears a small, corset-type brace to support the lower part of his back.

The back injury goes back to his sophomore year at Harvard University, when he apparently ruptured a disc in the lower lumbar region. When he was later thrown violently against the deck of his PT boat, he suffered a recurrence of the old football injury.

On Oct. 21, 1954, surgeons attempted a lumbar spine fusion by inserting a small metal plate, but the operation did not take. A staphylococcic infection followed, and President Kennedy was given the last rites of his church. He rallied and the metal plate was removed in a second operation in February, 1955.

He continued to suffer pain and use crutches. Final relief was obtained by novocaine injections directly into the cramped muscles. Novocaine is used on muscles in spasm to interrupt the vicious cycle of pain-spasm-pain. Spasm shuts down blood flow to the muscles; ending it restores their circulation. Thus, muscles can recover completely and function normally.

• Science News Letter, 79:54 January 28, 1961

NATURAL RESOURCES

# Urges Solar Energy Use

➤ A BIG PUSH for greater use of nuclear and solar energy as power sources during the next four years was urged before inauguration by President Kennedy's special advisory committee on natural resources.

Using nuclear and solar energy could speed up and reduce the cost of producing electricity, recovering minerals and converting salt water to fresh, among other projects.

To relieve the depressed mining areas in West Virginia and Pennsylvania, the committee suggests:

Burn the coal and convert it to electricity.

The top natural resources project on the list is flood control. Urgently needed improvements have been held up because of "unreasonable Bureau of the Budget restrictions," the committee report states. Local organizations already have applied for help in some 1,400 watersheds containing about 100 million acres of land. But applications are falling off because funds are not being distributed fast enough.

Budget policies inconsistent with the stated goals of the Kennedy administration should be eliminated or changed, the committee urged. Administration policy should be to try to have 2,000 watersheds completed or under construction by 1968, and should provide adequate loan funds for local organizations.

The report also urges that channels, harbors and locking facilities be improved to accommodate larger, more powerful vessels, not only for low-cost mass transportation in peacetime, but also to set up a built-in, bounce-back system in the event of heavy nuclear attack.

In addition to water pollution control and preservation of wildlife, the report states, reforestation and the creation of additional parks are much needed improvements. These facilities might be constructed by employing young men between 16 and 21 years, the committee urged.

• Science News Letter, 79:54 January 28, 1961

GENERAL SCIENCE

## Nobel Prize Winner Named Chairman of AEC

➤ DR. GLENN T. SEABORG, a Nobel Prize winner in chemistry, was named the new chairman of the Atomic Energy Commission by President Kennedy before his inauguration. Dr. Seaborg has been Chancellor for the University of California at Berkeley, where many important atomic experiments have been carried out. He replaces John A. McCone on the five-man commission.

Dr. Seaborg was co-discoverer of element 94, plutonium, which is the key to nuclear power and the main explosive in nuclear weapons. He is co-discoverer of P-239, a nuclear energy source, and of U-233, uranium, as well as other elements.

In 1951, he was awarded the Nobel Prize in chemistry for the discovery of tgrans-uranium elements and in 1959 he won the $50,000 Enrico Fermi Award.

Dr. Seaborg takes over the top atomic post in the Government at a time when the Kennedy Administration is reportedly considering a lengthy postponement of the nuclear test ban talks with the Soviet Union. They were slated to resume in Geneva Feb. 7.

The other members of the commission, appointed by former President Eisenhower, are John S. Graham, Dr. Robert E. Wilson and Loren K. Olson.

• Science News Letter, 79:54 January 28, 1961

SEISMOLOGY

## Sensitive Seismograph Records Earth Movement

➤ THE ANSWER to whether the earth's crust shrinks or stretches over a long period of time may soon be answered by a seismograph, recently installed in an underground mine in New Jersey by Columbia University scientists. The earth-movement recorder is so sensitive it can register a change of a small fraction of an inch in the earth's crust between New York and Chicago. The instrument is also expected to provide valuable information about "tides" in the solid earth, which involve the same principle as sea tides. As in sea tides, the moon plays a major part in earth tides, which sometimes rise and fall six inches in a 12-hour period. The seismograph is patterned after one designed by the late Prof. Hugo Benioff of the California Institute of Technology.

• Science News Letter, 79:54 January 28, 1961

PUBLIC HEALTH

## Red Cross Supplies 40% Of Blood Needed in U. S.

➤ ABOUT 40% of the total blood supply used for the ill and injured in the United States is provided by the American National Red Cross.

In its annual report to the Secretary of Defense and the U. S. Congress the Red Cross announced that more than 2,400,000 pints of blood during the fiscal year 1959-60, an increase of about three percent over 1958-59, had been collected and distributed in its blood program.

The 55th regional blood center was added last year to serve Puerto Rico and the Virgin Islands. The Red Cross also expanded research on blood and its derivatives at national headquarters in Washington, and has planned a branch research center at Los Angeles.

The Red Cross trained more than 2,700,000 young persons and adults in first aid, water safety and home nursing through formal class instruction and provided informal instruction to another 5,100,000 persons through press, radio and TV.

Among its other services, besides those for the Armed Forces, were 325 disaster relief operations.

Following the Chilean earthquake, which was the greatest foreign disaster of the past year, President Eisenhower asked the American Red Cross to coordinate all U. S. voluntary relief to Chile. Red Cross also sent a team of disaster specialists to assist the Chilean Red Cross and other authorities.

• Science News Letter, 79:54 January 28, 1961

ROCKETS AND MISSILES

# NASA Gains Listed

➤ THE UNITED STATES will take second place in space if its space efforts are merely a reaction to Soviet achievements, Dr. T. Keith Glennan, former Administrator for the National Aeronautics and Space Administration, warned in Washington.

"If you structure a program on what someone else has done, then you always must be second," he told SCIENCE SERVICE.

The U. S. space "firsts" achieved under NASA are results of its program "entirely made and designed in the U.S.A.," Dr. Glennan emphasized. They were achieved "despite the fact we started out one year after Sputnik I under the tremendous pressure of Congressional and public self-criticism.

"They were achieved under the constant glare of publicity in which often our so-called failures obscured the achievements," Dr. Glennan said. "It also has been overlooked that ours is a research and development organization. In such a program, failures are a prelude to ultimate success."

An example is the recent successful firing and recovery of the Mercury-Redstone I capsule that this year is scheduled to carry a chimp and then a man in a sub-orbital space flight. The "almost perfect success of MR I" could not have been achieved without previous failures, Dr. Glennan said.

Under his administration, NASA has grown into the seventh largest Government agency in point of funds. No other agency, except in time of war, has had such a record growth. And no Government-directed science operation has ever developed with so much public attention.

"None of us had any idea of the complexities of exploration of this new dimension, among these the problem of lack of adequate thrust and the costliness of all space development. The success we have achieved in such a relatively short time reflects to the credit of such persons as Dr. Abe Silverstein (director of Office of Space Flight Development); Dr. Hugh Dryden (deputy administrator of NASA); Ira H. Abbott (director of office of advanced research programs); Air Force Maj. Gen. Don R. Ostrander (director, office of launch vehicle programs); and many others.

During Dr. Glennan's administration, NASA initiated a program of international help and cooperation in space sciences. One of NASA's achievements in this area was the successful launch Jan. 12, 1961, of Italy's first space rocket, a two-stage rocket that reached a height of more than 100 miles.

"It would be helpful for those who now will be responsible for our space programs if the public will understand the long lead time required in experiments in propulsion units and others leading to the development of space vehicles themselves. We are working today on space craft that cannot fly for five years. And this will be the pattern for some time to come," Dr. Glennan said.

He returned Jan. 20 as president of the Case Institute of Technology, Cleveland, Ohio, from which he had been given a leave of absence.

• Science News Letter, 79:55 January 28, 1961

ENGINEERING

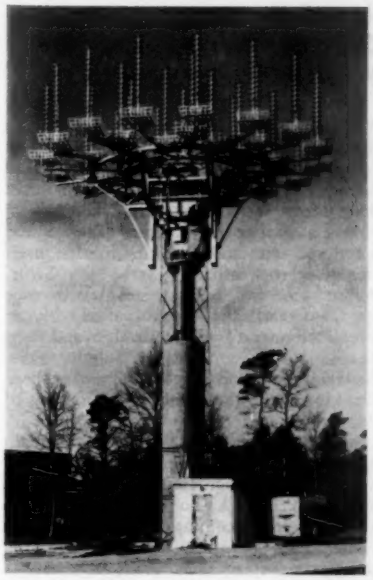
## U. S. Army Engineers Test Gas Turbine Tractor

➤ A GAS TURBINE-POWERED TRACTOR, one of the first military applications of turbine-powered earthmoving and construction equipment, is now being tested by U. S. Army engineers at Fort Belvoir, Va.

The tractor is a standard rubber-tired Caterpillar model, modified to house the gas turbine powerplant, which was developed by General Motors Corporation.

Its horsepower is about equal to the original Diesel engine, but the 600-pound gas turbine engine is much lighter in weight.

• Science News Letter, 79:55 January 28, 1961



*END-FIRE ANTENNA—will record telemetry from rockets tested at NASA's space flight station, Wallops Island, Va. It was built by General Bronze Corp., Garden City, N. Y.*

ROCKETS AND MISSILES

# Satellites Are Practical

➤ SATELLITES will have such important practical applications as more reliable weather forecasts as well as leading to the "distinct possibility" of discovering life beyond the earth.

These are two of many conclusions concerning space exploration presented before inauguration to President Kennedy by a nine-man scientific task force, headed by Dr. Jerome B. Wiesner of Massachusetts Institute of Technology. (See SNL, 79:34, 1961.)

The nine-man committee made five urgent recommendations for stepping up the United States program of space exploration. It called for a revitalization of the National Aeronautics and Space Council to coordinate military and civilian space activities, with the aid of a "very competent and experienced staff."

The committee urged establishment of a single agency in the Department of Defense responsible for managing the military portion of the space program. The Army, Navy and Air Force each have their own program now.

Many changes should be made in the National Aeronautics and Space Administration to "provide a vigorous, imaginative and technically competent top management," the committee concluded.

To make space activities attractive to a larger group of competent scientists and engineers, it recommended establishment of four technical directors under the NASA administrator and deputy administrator. The technical directors would manage programs in propulsion and vehicles, the scientific program, non-military space applications and aerodynamics and aircraft.

The committee urged that the U.S. national space program be reviewed and its objectives redefined in view of the experience gained during the past two years. Particular attention in the evaluation should be given to the "booster program, manned space flight, the military uses of space, and the applications of space technology to the civilian activities of the country."

Organizational machinery should be set up within the Government to administer an industry-government civilian space program, the committee found.

The committee called for a "vigorous program" to exploit the potentialities of practical space systems, and said the Government should make available the required facilities as well as any extraordinary financial supoprt required to make such undertakings by private industry successful.

Among the practical applications, the committee foresees industrial and Governmental communications satellites for telephone, radio, television and other forms of world-wide communications; navigation satellites; and use of meteorological satellites to provide longer range and more reliable weather predictions.

Exploration of the solar system by instruments on space probes may lead to the discovery of extraterrestrial forms of life, which "clearly would be one of the greatest human achievements of all times."

• Science News Letter, 79:55 January 28, 1961

PUBLIC SAFETY

## Driving Hazardous in Fair Winter Weather

➤ FAIR, COLD WINTER weather may be welcomed by drivers, but it is no friend of traffic safety records, according to Dan F. Schutz, safety director of the Wisconsin State Motor Vehicle Department.

"We cannot operate safely at summertime speed and with summertime abandon, even though the weather may be fine," Mr. Schutz said. The longer nights provide special hazards to overconfident drivers. Frequently, frost forms on bridges and overpasses. Lower visibility, headlight glare, driver fatigue and drivers who have been drinking make the winter night a thing of danger.

Mr. Schutz said that winter daylight can also be tricky, since the sun is lower and more blinding. Even when the sun is at a driver's back, he noted, it is in the eyes of every oncoming driver.

He cited as other wintertime driving dangers:

1. A tendency to become drowsy when the heater is turned on high in a tightly closed car.
2. The failure of warning sounds to be audible in a closed car above the inside noise of passengers or car radio.
3. The film of moisture that collects and freezes on car windows and reduces visibility, especially when the car is crowded.
4. Dangerous stalls in front of fast, oncoming traffic, resulting from driving before the car engine is warmed up.
5. The sluggishness of car controls before the car is thoroughly warmed up, resulting in the inability to react quickly and surely in case of emergency.

• Science News Letter, 79:56 January 28, 1961

MEDICINE

## One Out of Three Cancer Patients Is Being Saved

➤ ONE CANCER PATIENT out of three is now being saved. The gain in lives saved amounts to 42,000 lives a year for the past ten years.

The 1961 Cancer Facts and Figures of the American Cancer Society says there are more than a million Americans who are alive and without evidence of cancer at least five years after diagnosis and treatment.

There are 600,000 more who have been treated and who will probably be counted cured when five years have elapsed after the end of their treatment. However, curing one out of two who get cancer today is the immediate goal.

Death rates from lung cancer continue to show an increase, although those for uterine cancer have declined, and death rates for most forms of cancer have been stabilized.

If present trends continue, 1,000,000 children now in school will die of lung cancer before they reach 70. In 1961, an estimated 37,500 Americans will succumb to this kind of cancer, 32,400 of them men; 5,100 women.

Although there are more than 180,000 women alive who have been saved from uterine cancer, some 14,000 women die from it each year. The United States death rate from this form of the disease has declined 40% in the last 25 years among white women and 25% among Negro women. The Society credits the decline to earlier diagnosis and treatment.

Most of the 14,000 deaths from uterine cancer each year are unnecessary because new detection and treatment methods make this type of cancer nearly 100% curable, the booklet says.

The ratio of men to women dying of cancer continues to be greater for men, which has been true since 1949. The ratio in 1961 will be about 54 men to 46 women.

• Science News Letter, 79:56 January 28, 1961

SEROLOGY

## Gamma Globulin Fades In Germ-Free Animals

➤ GAMMA GLOBULIN, the blood serum fraction that has been used to ward off polio, virtually disappears when an animal is free of germs.

Dr. Bernard S. J. Wostmann of the University of Notre Dame, Notre Dame, Ind., reported in New York that there is a small amount of gamma globulin in the newborn germfree rabbit, but it disappears rapidly. The same is true of guinea pigs, except that the disappearance is a little slower.

Rats, mice, goats and sheep born under germfree conditions have very limited amounts of gamma globulin in the blood at birth, and although this amount does not decrease significantly, it does not rise any higher until the animal is taken out of the germfree environment.

Apparently the body requires a few days to produce large quantities of gamma globulin after birth, however. A baby goat accidentally infected at birth took 15 days to build up large amounts of this disease-fighting substance, Dr. Wostmann reported at a New York Academy of Sciences meeting.

• Science News Letter, 79:56 January 28, 1961

TECHNOLOGY

## Sonics in Die Casting Strengthen Aluminum

➤ APPLYING SONICS to die casting, engineers of Adams-Millis Corporation, High Point, N. C., have developed a new process by which aluminum machinery parts with much greater tensile strength can be made by the die cast method.

Aluminum parts made by the process are reported to have at least a 30% greater tensile strength and fewer defects than conventional castings. The process, called Vibrocast, is also said to be applicable to the casting of copper, brass and other nonferrous metals.

Using the new process, parts that previously had to be made of brass or steel in order to withstand high pressures can now be die cast of aluminum, including aircraft wheels.

• Science News Letter, 79:56 January 28, 1961

# IN SCIEN

EDUCATION

## More Science Teachers To Engage in Research

➤ MORE THAN 650 college and high school teachers will be actively engaged in scientific research next summer, thanks to recent National Science Foundation grants. The grants are intended to strengthen science education on all levels through the teacher's "learning by doing" actual scientific research.

Grants totaling more than $1,300,000 were made to universities and colleges to provide research programs for the science teachers. The teachers will help carry out research projects of a university or college department and work directly with the scientists in charge of the projects.

• Science News Letter, 79:56 January 28, 1961

BIOCHEMISTRY

## Base Fat Measurements On Carbon-14 Principle

➤ DOCTORS HAVE FOUND a new way to tell how much of a patient is fat and how much is lean body weight. The technique is based on the same principle used in the carbon-14 "atomic clock" dating method, except that radioactive potassium, rather than radioactive carbon, is measured.

The potassium method was developed by Dr. Gilbert B. Forbes and James Gallup and John B. Hursh of the University of Rochester's School of Medicine and Dentistry, Rochester, N.Y. The basic assumption is that potassium is found only in lean tissues and that each pound of lean tissue, whether from a fat or thin person, contains the same amount of potassium. Both potassium-40, which is radioactive, and normal potassium are present in the tissue, and the percentage of each remains fixed.

By measuring, with a whole body scintillation counter, the gamma rays emitted from the radioactive potassium in a patient's tissues, the investigators can calculate the number of lean pounds in the body.

Studies of 50 children and young adults show that the new method compares favorably with the popular skin-fold method for determining fatness.

In subjects studied so far, calculated fat content was 16% to 48% of total body weight in males and 24% to 67% in females.

"It is of interest that females tend to have a higher fat content for a given weight/height ratio than do the males," the researchers report in Science, 133:101, 1961.

The main advantage of the technique is that it requires no pills or injections of radioactive material and involves no hazard to the patient. The method can also be used to determine the proportions of fat and lean in a cat, a rabbit, a rat, a guinea pig or even in a canned ham.

• Science News Letter, 79:56 January 28, 1961

# E FIELDS

GEOPHYSICS

## Earth's Dust Cloud Came From Moon

➤ THE DUST CLOUD that encircles the earth several thousand miles out in space is formed of dust scattered from the moon when it is hit by meteorites, a United States scientist has suggested.

Dr. Fred L. Whipple of Harvard College Observatory, director of the Smithsonian Astrophysical Observatory, Cambridge, Mass., says that space experiments should "readily" show whether or not his theory of a lunar origin for the dust cloud is correct.

The existence of a high concentration of interplanetary dust orbiting the earth has been indicated recently from information gathered by rocket, satellite and space probe vehicles having instruments that detect the sounds the dust particles make when hitting the vehicle's surface.

Of four possible explanations for the origin of the dust cloud, Dr. Whipple believes that the lunar theory is the most "tenable." From this theory, a generally eastward motion of the particles in the dust cloud is predicted. This motion could be detected from space experiments, he reports in Nature, 189:127, 1961.

Compared to the density of true interplanetary space, the concentration of dust particles in the cloud surrounding the earth is perhaps 100,000 times as high, Dr. Whipple says.

• Science News Letter, 79:57 January 28, 1961

PSYCHOLOGY

## Young Baboon Can Count, May Learn to Add

➤ A YOUNG BABOON named Cowboy is making history at the University of Maryland's psychopharmacology laboratory, College Park, Md. He can count—at least when he is hungry.

Cowboy has been taught to push a button that turns on a light. The color of the light—orange, red, green, blue or white—determines how many beep tones, coming from a sound box hooked to the light switches, he must let pass before he pushes a second button that stops the sound and releases a food pellet.

If he pushes the second button before enough beeps have sounded or after too many, for the particular light color, he gets no food. Each beep lasts for two seconds, but the time between them varies. This keeps the baboon from merely marking total time before pushing the second button.

Cowboy now has the system down pat. He eats as he chooses and gets all the food he wants by pushing the proper buttons about 200 to 300 times a day. Usually, about 50 button pushes in one session release enough food for a meal.

At present, the baboon is required to keep track of no more than five beeps at one time. He may have to think a little harder in the future, however. Although his trainer, Dr. Jack Findley, assistant professor of psychology, is reluctant to state that his pupil can actually count, he hopes to teach Cowboy to add.

This may be done by turning on two different colors of lights at the same time and teaching the animal that he must stop the sounds only after the sum total of the beeps produced by each individual light has passed.

When the baboon has learned the more complicated task, Dr. Findley plans to give him mild stimulants, such as dexadrine and caffeine, to study their effects on performance, and to develop a technique applicable to the testing of newer drugs.

• Science News Letter, 79:57 January 28, 1961

BIOLOGY

## Living Insects Found On Antarctic Plateau

➤ A FEW DOZEN hardy insects and mites have been found 6,000 feet above sea level in the Mt. Gran area at the head of Mackay Glacier about 90 miles from McMurdo Sound, Antarctica.

Keith A. J. Wise, a New Zealander working under a National Science Foundation grant for the Bernice P. Bishop Museum of Honolulu, came across the arthropods at what is believed to be the highest altitude at which insect life has been encountered on Antarctica.

While he was on a field trip, Mr. Wise found approximately two dozen collembola or springtails, a type of primitive wingless insects, under loose rocks on a surface of the plateau that was free of snow. In the same general location he also found about a dozen free-living nonparasitic mites.

Both insects and mites are arthropods, belonging to the phylum arthropoda. But mites are not insects, having four rather than three pairs of legs in the mature stage.

The springtails found by Mr. Wise were all white, whereas specimens he had previously encountered at Hallett Station, about 300 miles farther north, were all black. Both black and white varieties were found at Mt. Suess.

• Science News Letter, 79:57 January 28, 1961

TECHNOLOGY

## Reinforced Asphalt Omits Steel Wire Fabric

➤ REINFORCED ASPHALTIC concrete resurfacing of a mile and a half of cracked highway has been completed for test purposes by New York State. Steel wire fabric used for reinforcement was deliberately omitted from some of the 40-foot-long slabs in the stretch of test highway. A new continuous strip photographic process recorded the condition of the highway before repair. A similar photographic record will be taken in several years so that a side-by-side comparison may be made to check the steel fabric's effectiveness in reducing cracks.

• Science News Letter, 79:57 January 28, 1961

BIOCHEMISTRY

## Unique Plasma Fraction Checks Copper Poisoning

➤ CERULOPLASMIN, a blue copper-protein found in the blood, may be the factor that protects the human body against the hazards of copper poisoning.

Activities ranging from working with copper to drinking beer and eating oysters, both of which have a high copper content, place the average person in danger of copper poisoning, Drs. Irmin Sternlieb and I. Herbert Scheinberg of Albert Einstein College of Medicine at Yeshiva University reported in New York.

The level of the copper-bound protein in blood is highest in adults in late pregnancy. It reaches a lower peak in old age. It is also at a high level in disease conditions such as heart-muscle damage caused by insufficient blood flow, overactivity of the thyroid gland, tumor of lymph glands, infections and after sex hormones are given.

No one knows why the ceruloplasmin level rises under these circumstances, the investigators reported at a New York Academy of Sciences conference. But the fact that the level falls in patients with poor protein balance may mean that a protein deficiency is involved.

Studies of patients with Wilson's disease suggest that ceruloplasmin plays a part in warding off copper poison, they said. If this is true, this plasma fraction is the only one with such powers, for all others known protect against bacterial and viral disease.

• Science News Letter, 79:57 January 28, 1961

EDUCATION

## World Affairs Role Urged for Colleges

➤ AMERICAN UNIVERSITIES and colleges must play a more active role in world affairs. Their help is urgently needed to contribute to the nation's understanding in international matters and to assist in the educational systems of the rapidly developing countries of Asia, Africa and Latin America.

A report issued in New York by a top-level committee from Government, industry and universities, called upon American institutions of higher learning to show new leadership and initiative in meeting their expanding responsibilities as centers of learning and service. The report also urged greater support to the universities from the Federal Government, state governments, industries and private foundations.

One important recommendation was the establishment of a new organization that would coordinate all the educational planning and development in world affairs.

The report, "The University and World Affairs," was prepared by the Committee on the University and World Affairs. Included were Dean Rusk, then President of the Rockefeller Foundation; Arthur S. Flemming, then Secretary of Health, Education and Welfare; and Senator J. W. Fulbright of Arkansas.

• Science News Letter, 79:57 January 28, 1961

ASTRONOMY

# Mars and Venus Still Prominent

**February's brilliant night sky features the constellations of Orion, Taurus, Auriga, Canis Minor and Leo, as well as the planets Venus and Mars, James Stokley reports.**

➤ STILL INCREASING in brilliance, Venus is now brighter than any other planet, or any star, in the evening sky. You can see it in the west soon after the sun has descended below the horizon, and long before the end of twilight. In fact, it is now so bright that you can even see it in broad daylight—if you know just where to look.

Even though it is now about a month past the time of its greatest brilliance, Mars is still prominent on February evenings. It is in the constellation of Gemini, the twins, high in the south as shown on the accompanying maps. These show the skies as they look about 10 p.m., your own kind of standard time, on Feb. 1; about 9 p.m. at the middle of February; and at 8 p.m. as it comes to an end.

On the astronomer's scale of brightness, Venus has a magnitude of minus 4.2 on Feb. 15. That of Mars is minus 0.1, which makes it about a fortieth as bright as Venus. Only one star is as bright: Sirius, the dog star, in Canis Major, the great dog. Sirius exceeds Mars by more than three and a half times.

## Mercury Seen Above Horizon

Because Mercury, the innermost planet, is so close to the sun, it is seldom seen. But on Feb. 6 it will be farthest east of the sun, and so will remain above the horizon for a little while after sunset. Thus, for a few evenings about this time you will be able to see it low in the southwest in the gathering dusk. By the time the sky is dark, Mercury will have set; we can never see it in the nighttime sky.

Higher than Sirius, and a little to the right, stands the notable constellation of Orion, the warrior. The three stars in a row, which form his belt, will help you recognize it. Above the belt is Betelgeuse and below is Rigel; both of these stars are first magnitude.

Still higher and farther right you will see Taurus, the bull. A V-shaped group of stars, called the Hyades, outline the bull's face. Among these is ruddy Aldebaran, which marks his eye.

Directly overhead, at the times for which our maps are drawn, stands Auriga, the charioteer. In it is the bright star called Capella, shown on the northern sky map. Below it, to the south, is Mars, in Gemini, the twins. In this same constellation is the first magnitude star Pollux. And below the Gemini is Canis Minor, the lesser dog, with Procyon.

In no other region of the sky are so many brilliant stars concentrated in so small an area. It is because they are visible in the evening at this time of year that the winter skies are so magnificent. The added presence of Mars now makes them even more so.

Climbing into view in the east is another first magnitude star, Regulus. It stands in the figure of Leo, the lion.

In the northeastern sky is Ursa Major, the great bear, of which the familiar great dipper is part. The two stars in the bowl of the dipper called the pointers show the way to Polaris, the pole star, which is always in the north. This is in Ursa Minor, the lesser bear.

To the left is Cepheus, the king, and Cassiopeia, the queen. The latter consists of stars arranged to form a letter M, on one side. And above and to the left of Cassiopeia is Perseus, the mythological hero, with the star called Algol. This is a famous variable star. Every 2.86 days this star dims in light as the brighter orb is eclipsed by a darker star that revolves around it.

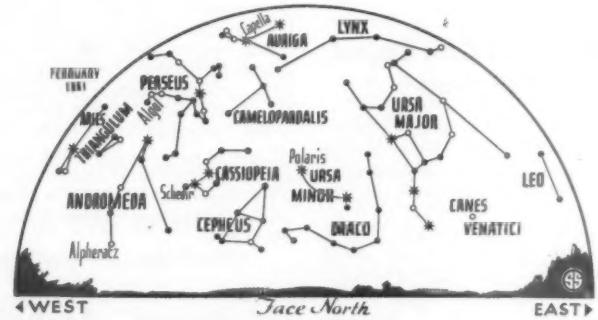
Twice each year the moon comes between the sun and earth, producing a solar eclipse. When this happens, the tip of the moon's conical shadow may sweep across the earth, along a path a hundred or so miles wide and several thousand miles long. In this "path of totality" the moon completely hides the sun's globe and the surrounding corona comes into view for a few minutes. When this happens, astronomers can make many observations possible at no other time.

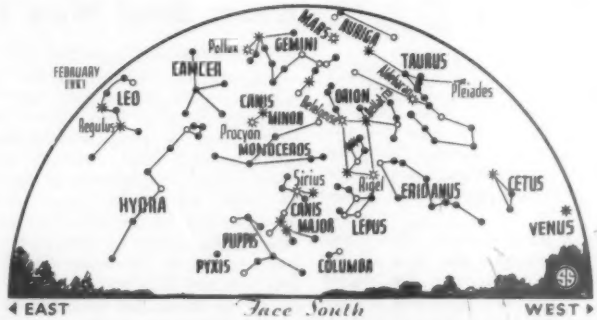
The eclipse track often passes over distant parts of the world, or over large areas of ocean in which there are but a few scattered islands. Many eclipse expeditions have been organized, at great trouble and expense, to get to the places where the eclipse can be seen. Sometimes all these efforts are frustrated by clouds in front of the sun during the crucial minutes.

## Eclipse Comes to Astronomers

Since an eclipse path may reach any part of the earth, occasionally it may happen to go over a well-populated region, even one with many permanent observatories. Then the astronomers do not have to go to the eclipse—it comes to them.

This will happen on Feb. 15, when the sun will be hidden for millions of people in southern and eastern Europe. The path of totality starts in the Bay of Biscay as the sun is rising. Then it sweeps over southern France, Italy, Yugoslavia, Rumania, Bulgaria and the U.S.S.R. It ends as the sun is setting in northern Siberia, near the Taimyr Peninsula. At the beginning of the path, in the Bay of Biscay, it is 130 miles wide, and at the middle the width is 164 miles.




SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

In southern Russia, at Rostov-on-Don and Stalingrad, the eclipse occurs around the middle of the day. The sun will then be about 27 degrees above the horizon and it will be hidden for two minutes 45 seconds. Farther west, in France and Italy, the sun will be lower, and the total eclipse will last about two minutes.

The path crosses the Riviera and persons wintering there will have an unusual spectacle to watch on the morning of the 15th. Watching the sun, with adequate protection for the eyes, they will see the dark disc of the moon slowly creep across the sun's face.

Then will come totality, the corona will flash into view, and the brighter stars, and Venus, will be visible. Then a sliver of the sun's disc will again appear, slowly widening as the moon moves away, and the eclipse ends. Over all of Europe, northern Africa and much of Asia, there will be a partial eclipse, with the moon hiding only part of the sun. The nearer a person is to the path of totality, the greater will be the area of the sun that is covered.

Fortunately for the astronomers, there are many observatories along the path. Near Ancona, Italy, is the Arcetri Observatory, equipped with special instruments for solar observations. At St. Michel, in southern France, is the Haute Provence Observatory, with a 76-inch reflector that is the largest telescope in Europe.

There is another large observatory on Mt. Gros, near Nice. Russian astronomers will be able to watch the eclipse from their large observatory at Simeis in the Crimea. With at least a dozen observatories along the path, this should be one of the best observed of all eclipses. If the weather is good, these observations should lead to many important new scientific data.

### Celestial Time Table for February

| Feb. | EST. | |
|---|---|---|
| 4 | 3:42 a.m. | Algol (variable star in Perseus) at minimum brightness |
| 6 | 7:00 a.m. | Mercury farthest east of sun, visible low in west after sunset for a few days about this date |
| 7 | 12:31 a.m. | Algol at minimum |
| 8 | 11:50 p.m. | Moon in last quarter |
| 9 | 9:20 p.m. | Algol at minimum |
| 12 | 12 noon | Uranus nearest earth, distance 1,614,000,000 miles |
| 13 | 1:00 a.m. | Moon passes Jupiter (visible low in east before sunrise) |
| | 2:00 a.m. | Moon passes Saturn |
| 14 | 6:00 a.m. | Moon nearest, distance 222,600 miles |
| 15 | 3:11 a.m. | New moon; eclipse of sun visible in Europe, Africa and Asia |
| 18 | 10:00 a.m. | Jupiter passes Saturn |
| 21 | 7:00 p.m. | Mercury passes between earth and sun |
| 22 | 3:35 a.m. | Moon in first quarter |
| 24 | 12 noon | Moon passes Mars |
| 25 | 12 noon | Pluto nearest earth; distance 3,028,000,000 miles |
| 26 | 4:00 p.m. | Moon farthest; distance 252,200 miles |
| 27 | 2:16 a.m. | Algol at minimum |

Subtract one hour for CST, two hours for MST, and three for PST.

• Science News Letter, 79:58 January 28, 1961

SOCIOLOGY

# Specialists Lead Society

➤ THE TRAINED "SPECIALIST" has replaced the local "aristocrat" in community leadership, a study of the Syracuse metropolitan area by Syracuse University sociologists has shown.

They found that technically trained persons are natural candidates for community leadership roles, because of the complexity of today's problems.

Community leadership patterns have been forced to keep pace with the physical growth and expansion of cities. In Syracuse, once ruled by a single clique, the sociologists found that the diverse problems of the community were handled by many persons, technically trained in specific fields.

Highlights of study's results:

1. The old "aristocracy" is no longer dominant. Although the "aristocrat" still exerts some influence and is active in the community, he no longer is automatically a leader.

2. The trained professional has become a force in the community. Technically trained persons become involved according to their interests and abilities. Engineers handle problems of city planning, finance men tackle the city budget, and public relations men administer the Community Chest.

3. The community leader of today is often nonlocal. Specialists tend to change locations with job promotions or changes. Because of their specific knowledge, the specialists tend to be community decision-makers, despite the previous assumption that leaders are always "local."

4. A very small segment of the population is involved in leadership. In the Onondaga County area of 395,000 people, less than three-tenths of one percent of the citizens participated in a direct way in the making of community decisions.

Although leaders share similar social characteristics, such as social position and education, a potential leader need not have this background. If a man has the necessary administrative or technical skills, he has access to leadership positions.

By use of the factor analytic technique, the team of sociologists studied patterns of participation in decision-making on 39 selected community problems. The participants, all community leaders, were then contrasted with a random sampling of the population.

• Science News Letter, 79:59 January 28, 1961

PSYCHIATRY

# Parents Foster Violence

➤ CHILDREN AND ADOLESCENTS who commit murder or make murderous attempts do so through parental fostering.

Consciously or unconsciously, one or both parents of eight boys studied for a year by Drs. William M. Easson and Richard M. Steinhilber, Mayo Clinic, Rochester, Minn., fostered and condoned murderous assault.

The patients were all from socially acceptable "normal" families but all eight acted violently with parental permission and approval, conscious or not, the psychiatrists say.

One of the eight shot and killed his music teacher, a middle-aged spinster friend of his mother. The ten-year-old boy, son of a lawyer, had collected and gloried in guns, and even after murder had been committed he was allowed to keep his gun collection.

The age of the boys ranged from eight to 16. Most of them had collections of knives and guns that they were allowed to retain and in some cases to increase even after several violent and menacing acts.

The psychiatrists say that no murder is without motive. In each case the child was repeatedly given to realize that his parents expected him to be physically violent and antisocially aggressive, even to the point of murder.

They say the boys were identified with their mothers in a hostile fashion and that the fathers either rejected them brutally or failed to play a definite masculine role in the family.

In one case, the father's murderous outbursts toward his boy were barely controlled, and in the child's own violent aggression, the psychiatrists pointed out, he was identifying with his father. Both parents condoned his behavior.

The study is reported in the American Medical Association's Archives of General Psychiatry, 4:1, 1961.

• Science News Letter, 79:59 January 28, 1961

GENERAL SCIENCE

## Ford Foundation Grants Total $1.3 Billion

➤ THE FORD FOUNDATION made grants totaling more than $1.3 billion during its first ten years as a national organization.

During 1960, the Foundation granted more than $160,000,000 to educational institutions, research organizations and hospitals. The 1960 total was the highest since 1956 when the Foundation made the bulk of its capital grants for faculty salaries, hospitals and medical schools.

Nearly half of the money spent over the ten-year period went to formal educational programs. Other major categories included arts and sciences, and hospital and medical schools.

Educational institutions again received a major portion of the grants in 1960.

The statistics were published in the 1960 Annual Report.

• Science News Letter, 79:59 January 28, 1961

# • Books of the Week •

**For the editorial information of our readers, books received for review are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C.**

ANALYTIC GEOMETRY AND CALCULUS—Frank L. Juszli—*Prentice-Hall*, 348 p., $6.75. Presents basic calculus, emphasizing techniques and graphical approach rather than abstract theory.

AN ANNOTATED BIBLIOGRAPHY OF INFLUENZA, Vol. I, No. 1, September 1960—Medical Documentation Service—*AIBS*, 20 p., quarterly, single copy, $2. Bibliographical record of articles published on influenza and related subjects in U. S. and foreign periodicals.

THE ARDEN HOUSE CONFERENCE ON TUBERCULOSIS—National Tuberculosis Association and U. S. Public Health Service—*GPO*, 68 p., paper, 45¢. Presents conference recommendations and highlights, with background figures and tables.

THE BOOK OF SCIENTIFIC DISCOVERY: How Science Has Aided Human Welfare—D. M. Turner, foreword by Charles Singer—*Barnes & Noble*, 3rd rev. ed., 301 p., illus., paper, $1.75. Shows in outline how some parts of our present scientific knowledge have grown, from the Middle Ages to the age of rockets, cyclotrons and automation.

COOPERATIVE WEATHER OBSERVER—Weather Bureau—*GPO*, 116 p., illus., paper, 65¢. Explains the part played by voluntary observers in recording the climate of this country. (See SNL, 79:42, 1961).

ELECTROMAGNETIC FIELDS AND WAVES—Robert V. Langmuir—*McGraw*, 227 p., $9.75. Intended for senior or first-year graduate level, familiarizes student with the meaning and content of Maxwell's equations, and such subjects as waveguides, cavities and antennas.

ELECTRONICS FOR CHILDREN—Gabriel Reuben—*Sterling*, 88 p., illus. by Bernard Case, $2.50. Teaches through experimenting.

FLORA OF PERU—J. Francis Macbride—*Field Mus.*, 316 p., paper, $6. Number two of Volume XIII, Part V, of Botanical Series, Field Museum of Natural History.

FUNDAMENTAL PHYSICS—Jay Orear—*Wiley*, 381 p., illus., $6.75. Using new approach to present basic principles for the non-physicist and the liberal-arts student, book demands reasoning on every page, and develops understanding in logical sequences. New in format as well as in content.

FUNDAMENTAL PRINCIPLES OF BACTERIOLOGY—A. J. Salle—*McGraw*, 5th ed., 812 p., illus., $11. Completely rewritten and brought up to date, emphasizes the use of chemistry for a clearer understanding of the composition of bacteria and the reactions they produce.

A GATHERING OF SHORE BIRDS—Henry Marion Hall; Roland C. Clement, Ed.—*Devin-Adair*, 242 p., illus. by John Henry Dick, $10. Handsome book, emphasizing the typical species of American shorebirds, blends the scientific with the popular.

GREAT SMOKY MOUNTAINS NATIONAL PARK: North Carolina and Tennessee—Arthur Stupka—*National Park Service (GPO)*, 75 p., illus., map, paper, 55¢. Natural history handbook of a region exceptionally rich and varied in vegetation, including primeval forests.

HANDBOOK OF NOISE MEASUREMENT—Arnold P. G. Peterson and Ervin E. Gross, Jr.—*General Radio Co.*, 4th ed., 132 p., illus., paper, $1. Covers measurements of noise and vibration, describes equipment, procedures and interpretation of results of acoustical measurements.

HOUSING A METROPOLIS: Chicago—Beverly Duncan and Philip M. Hauser—*Free Press*, 278 p., $7.50. Monograph analyzes current housing conditions in Chicago, explores pattern of recent changes and compares these with characteristics in other major metropolitan areas.

THE HUMAN FRAME—Giovanna Lawford, foreword by Margaret Mead—*Doubleday*, 109 p., illus. by author, paper, 95¢. Beautiful detailed drawings of the human bone structure.

HUMAN NUTRITION: Historic and Scientific—Iago Galdston, Ed.—*International Univ. Press*, 321 p., $6. Presents new material about progress in nutrition, including comparisons of food habits of Alaska, Latin America, China and India, relating nutritional progress to social and historical factors which aid or impede its growth.

INTERNATIONAL EDUCATION IN PHYSICS: Proceedings of the International Conference on Physics Education, Unesco House, Paris, 1960—Sanborn C. Brown and Norman Clarke, Eds.—*Wiley*, 191 p., $4.50. A world view of physics education, of examinations, selection of students, laboratory work, training of teachers, physics for non-physicists, use of television, and teaching of mathematics.

LABORATORY MANUAL IN PRINCIPLES OF BIOLOGY AS ILLUSTRATED BY ANIMALS—Howard J. Stains—*Burgess*, 127 p., illlus., paper, $2.50. Provides material for four hours of laboratory work per week.

LINEAR SYSTEMS ANALYSIS: An Introduction to the Analysis of Discrete-Parameter Time-Invariant Linear Systems—Paul E. Pfeiffer—*McGraw*, 538 p., $12.50. Provides fundamentals of theory as applied to passive linear circuits, linear servomechanisms and mechanical vibrating systems.

MECHANICAL WAVEGUIDES: The Propagation of Acoustics and Ultrasonic Waves in Fluids and Solids with Boundaries—Martin Redwood—*Pergamon*, 300 p., $9. Introduction to the properties of guided waves, with survey of the more important recent research.

THE MICROSCOPE AND HOW TO USE IT—Georg Stehli—*Sterling*, 160 p., illus., $3.95. A methodical, fully illustrated guide to discovering new worlds by microscopic examination.

MODERN TRIGONOMETRY—Dick Wick Hall and L. O. Kattsoff—*Wiley*, 236 p., illus., $4.95. Elementary text, analytic in approach and emphasizing the ability to reason about the trigonometric functions.

OLD FATHER: The Story Teller—Pablita Velarde—*King, Dale Stuart*, 67 p., illus. by author, $7.95. Tribal legends written and handsomely illustrated by Pueblo Indian artist.

RADIATION RESEARCH IN THE LIFE SCIENCES: Current Projects in the United States and Throughout the World—Committee on Government Operations, U. S. Senate—*GPO*, 173 p., paper, 55¢. Information on the magnitude, organization and distribution of current research programs, fully indexed.

RELIGION & SCIENCE—Bertrand Russell—*Oxford Univ. Press*, 256 p., paper, $1.25. First published in 1935.

REPRESENTATIVE CHORDATES: A Manual of Comparative Anatomy—Charles K. Weichert—*McGraw*, 2nd ed., 218 p., illus., $4.25. Designed for use as a laboratory manual in one-semester courses in comparative anatomy of the vertebrates.

A REVISION OF CEDRELA (MELIACEAE)—C. Earle Smith, Jr.—*Chicago Natural Hist. Mus.*, 46 p., illus., 14 plates, paper, $1.75. Treats only the American species of Spanish cedar.

SCIENCE IS FUN. SCIENCE IS LEARNING. SCIENCE IS EXPLORING.—Wilbur B. Beauchamp—*Scott, Foresman & Co.*, 112 p., 128 p., 168 p. illus., $2.20, $2.44, $2.68. Basic science program for grades 1, 2 and 3, with teachers' editions available.

STUDY ABROAD: New Dimensions in Higher Education, No. 6—Irwin Abrams—*GPO*, 21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p., paper, 15¢. Evaluation of program patterns and effectiveness of study programs abroad.

TEXTILE HANDBOOK—Dorothy S. Lyle and others—*Am. Home Economics Assn.*, 108 p., illus., paper, $1.25. Covers textiles from fiber through finished fabric, including the newer man-made fibers and finishes used on all fibers.

• Science News Letter, 79:60 January 28, 1961

ARCHAEOLOGY

## Dead Sea Scrolls Found To Be 60 Years Older

▶ DUE TO a more accurately determined half-life for carbon-14, the famed Dead Sea Scrolls have been found to be 60 years older than previously believed. They are now dated to about 20 B.C. instead of 40 A.D. W. B. Mann and W. F. Marlow of the National Bureau of Standards redetermined the half-life of carbon-14. Using improved technique and better gas counters, they found that the half-life of this element is 5,760 years instead of the previously accepted value of 5,568 years. Carbon-14 is the "atomic clock" used for dating objects of geological and archaeological significance.

• Science News Letter, 79:61 January 28, 1961

PUBLIC HEALTH

## British Avoid Atomic Contamination

▶ "IMMENSE TROUBLE" is being taken in Great Britain to avoid radioactive contamination from atomic development, Sir George Thomson, Nobel Prize winning British physicist, told SCIENCE SERVICE.

The limit of man-made radioactive contamination allowed in the Thames River from radioactive waste disposal is less than that naturally present in New York water sources, Sir George said. This estimate, he said, was given him by Sir John Cockcroft, the British Nobelist who received the 1961 Atoms for Peace Award.

However, except from an atomic war, the greatest danger of radioactive contamination is from a nuclear reactor accident and from disposal of radioactive wastes. Although there are bound to be accidents, the British physicist said, working in an atomic plant is not a hazardous occupation, based on the record so far.

"Compared with the general level of industrial accidents, particularly in the chemical industry, the accident level in atomic plants in Great Britain has been very low, even if one includes the accident at Windscale," he said. (The accident resulted from the overheating of a radioactive pile and caused contamination of milk and dairy supplies in surrounding areas. However, not one of the 3,000 workers nor any of the nearby residents were visibly affected.)

Sir George also believes that fear of genetic damage from fallout also may be greatly exaggerated. He said that if genetic damage is serious, miscarriage rather than abnormal birth would be most likely to be the result.

• Science News Letter, 79:61 January 28, 1961

GEOPHYSICS

## International Scientific Programs Planned

▶ FUTURE INTERNATIONAL scientific programs for studying the sun's activities, the earth's magnetic field and its interior are being planned by the Comite International de Geophysique, Paris, France. The committee is the successor to the Special Committee for the International Geophysical Year. Future studies include charting the earth's magnetic field in 1965 (World Magnetic Survey) and observing the cosmic rays and "northern lights" resulting from eruptions on the sun (Solar Activity Minimum Programme). Another future program will be a study of the mantle of rock directly beneath the earth's crust. Drilling will probe into the deep layers to determine the mantle's role in developing the earth's crust.

• Science News Letter, 79:61 January 28, 1961


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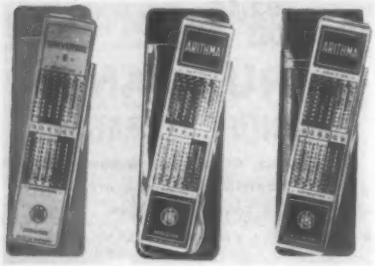

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CHEMISTRY

## See Atomic Waste Use In Salt Water Conversion

➤ RADIOACTIVE WASTE PRODUCTS from atomic plants may soon be a source of energy for converting salt water to fresh water. This use could help solve the problem of disposing of highly radioactive material, and also help combat the growing water shortage in the United States.

Dr. A. L. Miller, director, office of saline water of the U. S. Interior Department said that the energy from the waste products could provide the heat source for a salt water distillation plant. One batch of radioactive material, in powder form, could give off heat for 15 years, he estimated. Cost for this heat source in the United States would be competitive with oil and other forms of energy, Dr. Miller said.

The powder is left as a residue when highly radioactive liquid waste material is heated at high temperature, driving off all the gases. The powder remaining is easier to transport and safer to handle than the bulky liquids.

Dr. Miller said that a distillation plant utilizing this heat source will be built in the near future in cooperation with the Atomic Energy Commission.

• Science News Letter, 79:62 January 28, 1961

ICHTHYOLOGY

## Fish Locate Their Homes By the Sense of Smell

➤ FISH CAN LOCATE their homes by the sense of smell, C. W. Threinen, administrative assistant in the Wisconsin Conservation Department, has reported.

He said that in experiments made in Indiana with longear sunfish some of the fish were blinded, the sense of smell was destroyed on others, and both sight and smell were destroyed on a third group.

The fish were then displaced from their homes in a stream and watched. Those with undamaged sense of smell got home safely even though they could not see.

• Science News Letter, 79:62 January 28, 1961


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INVENTION

## Possible Cure for Dutch Elm Disease Found

THE DUTCH ELM disease that has nearly eliminated the elm as a shade tree in many areas of the U. S. may soon be effectively treated by a new method now patented. Tests conducted on diseased trees strongly indicate a cure has been found.

The patent, No. 2,967,377, provides for treatment of the tree by attacking and dissolving the fungus causing the disease.

A hole is bored into the trunk of an infected elm tree, the patent solution poured in, and then plugged up. The solution, containing sulfur, tartaric acid and iodine, is absorbed by the tree and carried to the diseased areas where it dissolves the fungus. A second injection of the same solution along with a liquid fertilizer is also recommended in the patent awarded to Glenn A. Brown of Huntington, Ind.

Tests conducted over an 18-month period show only a negligible amount of the diseased elm trees treated yielded to the disease, while more than 50% of the untreated elm trees in the same area died. The 18-month period is the expected life span of a diseased elm.

The Dutch elm disease is due to a fungus clogging up the food canals of a tree and is characterized by leaves turning yellow, falling off, and the tree eventually dying. Since being introduced into the country in 1930, the disease has spread throughout most of the United States.

An electronic hearing aid so small it can fit completely inside the ear won patent No. 2,967,913 for Maurice Aubert and Eugene Miquelis, both of Nice, France. The self-powered, battery-operated hearing aid transmits sound waves directly to the ear drum preserving nearly all the sound. Normally, the sound waves are transmitted through the air or through the ear's bone structure where a considerable portion of the sound waves is lost.

Sound reaching the outer ear is received by a microphone, amplified and passed through a receiver. A plastic water-filled tube, bridging the gap between the receiver and the ear drum, transmits the sound vibrations to the ear drum.

The amateur photographer fumbling with his camera settings and his unwieldy flash attachment while trying to take a night shot can save himself a lot of unnecessary trouble, according to Paul Lachaize of Rhone, France. Mr. Lachaize has invented a camera with a flash unit that can be lowered into the camera when not in use. A disc, indicating the sensitivity of various film types, is located on the camera front. By setting the disc to agree with the film type in the camera, the camera is just about set for picture taking.

The patent rights of the invention, No. 2,967,469, were assigned to Mecimap, a French company.

A public bomb shelter said to protect persons inside from harmful heat and radiation, and drowning, has been granted a patent. Because Morton M. Rosenfeld of Mount Vernon, N. Y., believes strongly in the danger of death through drowning from broken water mains and sewerage pipes, he made his shelter waterproof.

The entrance to the underground shelter is housed in a concrete dome, which has openings a few feet above the ground. Retaining walls, or curbs, within the dome further protect the entrance in case any water overflows into the shelter.

For the structure, Mr. Rosenfeld was awarded patent No. 2,967,494.

Cigarette smokers who want to break the habit can make an honest effort by trying a unique cigarette holder invented by Joseph J. Kelter of Brooklyn, N. Y. This device can control the amount of smoke inhaled. By continually reducing the amount over a period of time, the smoker should be able to break the habit.

Patent rights to the invention, No. 2,967,528, went to Falmouth Pharmaceuticals Ltd.

The back-breaking job of shoveling snow in the winter is claimed to be much easier if you use a hand-operated snow plow invented by John M. Meier of Oradell, N. J. The plow has an adjustable blade that pushes the snow aside while walking a straight path.

A narrow, curved runner, attached to the handle and the blade, acts as a support for the snow plow.

Mr. Meier was granted patent No. 2,967,363 for the invention.

• Science News Letter, 79:63 January 28, 1961

## *Do You Know*

An excessive amount of *histamine*, a natural body chemical overproduced during allergy attacks, can cause mental disturbances by acting on the brain.

Infrared aerial photographs of *forests*, taken from an airplane, can be used to identify different species of trees in the forest.

*Copper* was used as a medium of exchange by early civilizations because it was durable and easy to shape.

A small research reactor providing short bursts of radiation for biomedical and health physics *research* will be built at Oak Ridge, Tenn.

The U. S. Navy may soon store *fuel* for ships in underwater rubber tanks fixed to the ocean bottom.

• Science News Letter, 79:63 January 28, 1961

## Questions

GENERAL SCIENCE—What is the total budget for fiscal 1962? p. 51.

MATHEMATICS—In how many years does the amount of material a student has to learn double? p. 53.

PSYCHOLOGY—How will the baboon named Cowboy learn to add? p. 57.

*Photographs:* Cover, Fremont Davis; p. 51, Bell Helicopter Company; p. 53, Bell Telephone Laboratories; p. 55, GB Electronics Corp.; p. 64, Auto-View Welding Helmet Co.


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# New Ideas and Gadgets

For sources of more information on new things described, send a self-addressed stamped envelope to SCIENCE NEWS LETTER, 1719 N St., N.W., Washington D. C., and ask for Gadget Bulletin 1076. To receive this Gadget Bulletin without special request each week, remit $1.50 for one year's subscription.

*RAIN COVERALL, a plastic one-piece, zip-on suit, gives complete protection against rain, sleet and snow. Roomy and action-free, it folds into a small carrying-case and can be used by outdoorsmen for sports or work in city or country.*

• Science News Letter, 79:64 January 28, 1961

*KEY CHAIN FLASHLIGHT, ⅞ inch in diameter, may be recharged whenever necessary by inserting it in a special plastic case, powered by two small penlite batteries. Set in a finely wrought gold and silver globe, the tiny light is turned on by pulling the chain to which it is attached.*

• Science News Letter, 79:64 January 28, 1961

*MARINATING SYRINGE flavors and seasons meats immediately, eliminating hours of soaking. The unbreakable polyethylene syringe is equipped with a 1½-inch blunt steel needle for use in injecting wines, sauces, liquid and herb seasonings deep into foods.*

• Science News Letter, 79:64 January 28, 1961

*WELDER'S HELMET, shown in the photograph, provides welder with clear view of his work without having to use his hands to remove light shield. He merely opens his mouth and a spring-activated mechanism in the helmet does the work. To replace the leak-proof light filter automatically, he*

*closes his mouth. The standard model has an adjustable headband. A hard-hat model has a safety helmet that can be worn without welding hood.*

• Science News Letter, 79:64 January 28, 1961

*TEACHING DEVICE, a triple-track inclined plane, demonstrates a three-way down-hill race between a sphere, a hoop and a solid cylinder, illustrating the effects of differing coefficients of rotational inertia. Electromagnets, connected in a series to a six-volt battery, hold the objects on the parallel track.*

• Science News Letter, 79:64 January 28, 1961

*SANITIZING AEROSOL SPRAY makes telephone mouthpiece sanitary in one second, providing residual germ-killing action for up to six days. It is available in regular and economy size cans as well as lipstick size for purse and travel.*

• Science News Letter, 79:64 January 28, 1961

*LEVELER AND STRAIGHT EDGE made of lightweight extruded aluminum, simplifies the work of the do-it-yourself bricklayer or carpenter. The instrument plumbs two surfaces simultaneously. When used in the leveling position, it will also act as a facing straight edge. It is available in 3-, 4- and 6-foot lengths.*

• Science News Letter, 79:64 January 28, 1961

*SOLDERING GUN, for the home handyman as well as professional technicians, is lightweight and encases a study single pole construction for delicate deep-set precision work. It has a built-in pre-focused spotlight to illuminate working areas and comes equipped with six-foot cord and plug. Interchangeable soldering tips are available.*

• Science News Letter, 79:64 January 28, 1961

# Nature Ramblings

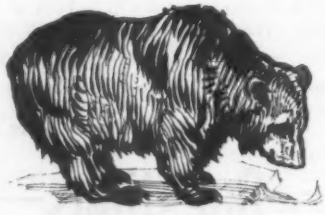
➤ WHAT IS HAPPENING to our North American mammals? With every new list of animals, the number of species of mammals becomes smaller and smaller.

The number of North American mammals recognized by experts in 1923 was 1,399. Twenty years later, the most authoritative list showed only 1,065 mammals. The lastest roster of North American mammals, published in 1959, listed only 1,003 species.

Have 396 different species of our mammals become extinct in this short period of time? The only extinction involved has been the disappearance of 396 different scientific names. In the language of biologists, there has been a victory of the "lumpers" over the "splitters."

The "splitters" are those scientists who typically search for fine differences among the plants and animals they study, creating new species names to apply to each minutely differing group. The "lumpers,"

## Our "Disappearing" Mammals

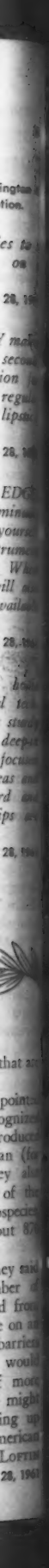


on the other hand, typically hunt out similarities and they lump two or more species under the same name. In the most recent list, this was done, for example, with some of the bears.

Actually, more different kinds of North American mammals are known today than ever before. For example, there was a total of 2,554 kinds of North American mammals in 1923, compared to 3,679 kinds in 1959. This increased variety is seen in the number of lesser groups, called "subspecies," that are now recognized by experts.

Two eminent mammalogists have pointed out that of the 1,003 species recognized today, at least eight have been introduced into North America by modern man (for instance, the house mouse). They also agree that probably another 125 of the remaining mammals are only subspecies, which cuts the total down to about 870 distinct species.

Still at the business of lumping, they say about 170 of the dwindling number of mammals are geographically isolated from their nearest relatives, as for example on an island. Now, if these geographical barriers were broken down, most of these would probably prove to be members of more widely distributed species. Thus, we might subtract another 170 species, winding up with only 700 species of North American mammals!

—HORACE LOFTIN

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